

CLAIMS

What is claimed is:

- 1 1. A packet optimization method comprising:
2 generating a metric to indicate a channel condition;
3 processing the metric to determine optimal packet-size for the channel
4 condition; and
5 choosing the optimal packet-size corresponding to the processed metric to
6 send to a requestor.
- 1 2. The packet optimization method of claim 1, wherein processing further
2 includes:
3 receiving the metric corresponding to the channel condition; and
4 using the received metric to balance a trade-off between the cyclic
5 redundancy check and re-transmission overhead.
- 1 3. The packet optimization method of claim 1, wherein choosing the optimal
2 packet further includes training a neural network or look-up table to optimally
3 improve system data throughput by selecting a packet corresponding to the
4 channel condition.
- 1 4. The packet optimization method of claim 1, wherein the optimal packet-
2 size being a packet-size that minimizes both cyclic redundancy check and re-
3 transmission overhead.
- 1 5. The packet optimization method of claim 1, wherein the metric being a
2 frame error rate
- 1 6. The packet optimization method of claim 1, wherein the metric being a
2 function of a packet error rate selected from a group consisting of frame error

3 rate (FER), signal to noise ratio estimate (SNR), energy per bit (Eb) / Thermal
4 noise (Nt) estimate, and system time or finger time drift rate.

1 7. An apparatus comprising:
2 a memory to store a metric and packet; and
3 a processor to generate a metric indicating a channel condition, to process
4 the metric to determine optimal packet-size for the channel condition, and to
5 choose the optimal packet-size corresponding to the processed metric to send to
6 a requestor.

1 8. The apparatus of claim 7, wherein the processor is to receive the metric
2 corresponding to the channel condition, and use the received metric to balance
3 trade-off between the cyclic redundancy check and re-transmission overhead.

1 9. The apparatus of claim 7, wherein the processor is to train a neural network
2 or look-up table to optimally improve system data throughput by selecting a
3 packet corresponding to the channel condition.

1 10. The apparatus of claim 7, wherein the processor is to choose an optimal
2 packet-size that minimizes both cyclic redundancy check and re-transmission
3 overhead.

1 11. The apparatus of claim 7, wherein the processor is to use the metric
2 corresponding to frame error rate

1 12. The apparatus of claim 7, wherein the metric being a function of a packet
2 error rate selected from a group consisting of frame error rate (FER), signal to
3 noise ratio estimate (SNR), energy per bit (Eb) / Thermal noise (Nt) estimate,
4 and system time or finger time drift rate.

1 13. A storage medium having stored therein a plurality of machine executable
2 instructions, wherein when executed, the instructions perform a method
3 comprising:
4 generating a metric to indicate a channel condition;
5 processing the metric to determine optimal packet-size for the channel
6 condition; and
7 choosing the optimal packet-size corresponding to the processed metric to
8 send to a requestor.

1 14. The storage medium of claim 13, wherein processing further includes:
2 receiving the metric corresponding to the channel condition; and
3 using the received metric to balance trade-off between the cyclic
4 redundancy check and re-transmission overhead.

1 15. The storage medium of claim 13, wherein choosing the optimal packet
2 further includes training a neural network or look-up table to optimally improve
3 system data throughput by selecting a packet corresponding to the channel
4 condition.

1 16. A method of preventing system overload in a base station or mobile data
2 transmission system comprising:
3 estimating likelihood of packet transmission error in a system;
4 determining a radio link protocol (RLP) packet-size corresponding to the
5 estimated likelihood of packet transmission error; and
6 sending the RLP packet to a base station or mobile data transmission
7 system.

1 17. The method of claim 16, wherein determining the RLP packet-size further
2 includes:
3 allowing a base station or mobile data transmission system to request a
4 change for the RLP packet-size;

5 selecting a RLP packet from a predetermined table that corresponds in size
6 to the size requested by the base station or mobile data transmission system; and
7 sending the selected RLP packet to the base station or mobile data
8 transmission system.

1 18. The method of claim 17, wherein the base station or mobile data
2 transmission request being limited to a predetermined number of requests.

1 19. An apparatus comprising:
2 a memory to store an RLP packet; and
3 a processor to estimate likelihood of packet transmission error in a system,
4 to determine a radio link protocol (RLP) packet-size corresponding to the
5 estimated likelihood of packet transmission error, and to send the RLP packet to
6 a base station or mobile data transmission system.

1 20. The apparatus of claim 19, wherein the processor is to allow a base station
2 or mobile data transmission system to request a change for the RLP packet-size,
3 to select a RLP packet from a predetermined table that corresponds in size to the
4 size requested by the base station or mobile data transmission system, and to
5 send the selected RLP packet to the base station or mobile data transmission
6 system.

1 21. The apparatus of claim 20, wherein the processor is to limit the request
2 from the base station or mobile data transmission to a predetermined number of
3 requests.

1 22. A storage medium having stored therein a plurality of machine executable
2 instructions, wherein when executed, the instructions perform a method
3 comprising:
4 estimating likelihood of packet transmission error in a system;

5 determining a radio link protocol (RLP) packet-size corresponding to the
6 estimated likelihood of packet transmission error; and
7 sending the RLP packet to a base station or mobile data transmission
8 system.

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1 23. The storage medium of claim 22, wherein determining the RLP packet-size
2 further includes:

3 allowing a base station or mobile data transmission system to request a
4 change for the RLP packet-size;

5 selecting a RLP packet from a predetermined table that corresponds in size
6 to the size requested by the base station or mobile data transmission system; and

7 sending the selected RLP packet to the base station or mobile data
8 transmission system.

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1 24. The storage medium of claim 22, wherein the base station or mobile data
2 transmission request being limited to a predetermined number of requests.

1 25. A method of optimizing packet-size comprising:

2 storing at least one radio link protocol (RLP) packet in a physical layer; and
3 predetermining the RLP packet-size by empirical experimentation.

1 26. The method of claim 25, wherein the empirical experimentation includes
2 simulating a condition with a particular metric value;

3 adjusting packet-size manually corresponding to the metric value; and

4 recording packet-size data for the metric value to obtain maximum system
5 throughput.

1 27. The method of claim 25, wherein the predetermining further includes

2 storing a metric value in a lookup table and obtaining an optimum packet-size

3 corresponding to the stored metric value.

1 28. The method of claim 25, wherein the RLP packet includes cyclic
2 redundancy check bits to provide error-checking capability for the RLP packet.

1 29. An apparatus comprising:
2 a memory to store an radio link protocol (RLP) packet, and empirical
3 experimentation data;
4 a processor to store at least one RLP packet in a physical layer, and to
5 predetermine the RLP packet-size by empirical experimentation.

1 30. The apparatus of claim 29, wherein the processor to perform empirical
2 experimentation is to simulate a condition with a particular metric value, to
3 adjust packet-size manually corresponding to the metric value, and to record
4 packet-size data for the metric value for obtaining maximum system throughput.

1 31. The apparatus of claim 29, wherein the processor is to store a metric value
2 in a lookup table and is to obtain an optimum packet-size corresponding to the
3 stored metric value.

1 32. The apparatus of claim 29, wherein the RLP packet includes cyclic
2 redundancy check bits to provide error-checking capability for the RLP packet.

1 33. A storage medium having stored therein a plurality of machine executable
2 instructions, wherein when executed, the instructions perform a method
3 comprising:
4 storing at least one radio link protocol (RLP) packet in a physical layer; and
5 predetermining the RLP packet-size by empirical experimentation.

1 34. The storage medium of claim 33, wherein the empirical experimentation
2 includes
3 simulating a condition with a particular metric value;
4 adjusting packet-size manually corresponding to the metric value; and

5 recording packet-size data for the metric value to get maximum system
6 throughput.

1 35. The storage medium of claim 33, wherein the predetermining further
2 includes storing a metric value in a lookup table and obtaining an optimum
3 packet-size corresponding to the stored metric value.

1 36. The storage medium of claim 33, wherein the RLP packet includes cyclic
2 redundancy check bits to provide error-checking capability for the RLP packet.

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